



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

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07/683.549 04/10/91 NELSON

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MARK D. ROWLAND
FISH & NEAVE
1251 AVENUE OF THE AMERICAS
50TH FLOOR
NEW YORK, NEW YORK 10020

C	LT-5 REISSUE
EXAMINER	

RILEY, S

ART UNIT	PAPER NUMBER
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28

2111
DATE MAILED:

05/16/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined

☒ Responsive to communication filed on 13 Mar 95

☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- ☐ Notice of References Cited by Examiner, PTO-892.
- ☐ Notice of Draftsman's Patent Drawing Review, PTO-948.
- ☒ Notice of Art Cited by Applicant, PTO-1449.
- ☐ Notice of Informal Patent Application, PTO-152.
- ☐ Information on How to Effect Drawing Changes, PTO-1474.
- ☒ Telephonic Interview 19 Sep 94

Part II SUMMARY OF ACTION

- ☒ Claims 1-82 84-92 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
- ☒ Claims 83 ^{has} have been cancelled.
- ☒ Claims 1-81 are allowed.
- ☒ Claims 82 & 84-92 are rejected.
- ☐ Claims _____ are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.
- ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
- ☐ Formal drawings are required in response to this Office action.
- ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
- ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
- ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
- ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
- ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
- ☐ Other _____

Reissue

Response to Amendment

1. Applicant's arguments filed 13 March 1995 have been fully considered but they are not deemed to be persuasive. In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. In re Nomiya, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. In re McLaughlin, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. In re Bozek, 163 USPQ 545 (CCPA) 1969. In this case, the combination of UC3842 in view of the Texas Instruments reference (Types RC4193M, RC4193I and RC4193C micropower switching regulators) and the Texas Instruments reference (Type TL496C 9-Volt Power-Supply Controller in claims 86-92 and the combination of the UC3842 reference in view of LSH6335P reference, LSH6355P reference, Moreau, and Mashino in claims 82-85 is seen as a design choice (see below for a fuller explanation). The 102(a) rejection of claim 89 has been amended to reflect the applicant's latest

revision of claim 89 stating, *inter alia*, no more than 5 terminal connection are required for operation.

Applicant has correctly stated the law concerning the prior rejection based on 35 USC 251 which has been withdrawn.

Further, by amendment, applicant has overcome all previous rejections and objections of the claims and specification based on 35 USC 112.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

3. Claims 86-92 are rejected under 35 U.S.C. § 103 as being unpatentable over UC3842 and further in view of the Texas Instruments reference (Types RC4193M, RC4193I and RC4193C micropower switching regulators) and the Texas Instruments reference (Type TL496C 9-Volt Power-Supply Controller. The

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UC3842 reference discloses the invention essentially as claimed including an input terminal - 7, a ground terminal - 5, an output terminal - 6, a feedback terminal - 2, a compensation terminal - 1, a power switching transistor - transistor of fig. 1, a circuit for varying the on and off duty cycle of the transistor - PWM latch, a circuit including a resistive element - R_{sense} , a circuit for generating an error signal - error amplifier, a circuit for comparing the current sense signal to the error signal - current sense comparator and said comparing circuit being responsive to control signals applied to the compensation terminal for limiting peak current and variably limiting current conducted by the switching transistor - Pg. 73 and Fig. 4.

Claims 86, 87, 90 and 91 additionally recite a shutdown state. The UC3842 reference however does not disclose a shutdown state of the regulator. The Texas Instruments Reference for Types RC4193M, RC4193I and RC4193C micropower switching regulators discloses on page 2-63 the RC4193 will shut off when pin 6 is below .5 volts and that this is used to shut down the regulator whenever the battery voltage drops. The TL496C reference discloses allowing minimal supply current drain during stand-by operation (see second paragraph of description). It would have been obvious to one of ordinary skill in the art at the time of the invention to add a shutdown state to the UC3842 switching regulator since the inventor of the UC3842 would have

been drawn to the beneficial feature of eliminating power-up sequencing problems taught by the references.

Claims 88 and 92 additionally recite a bipolar transistor. This feature is shown in Fig. 1 of the UC3842 reference.

4.

Claims 82-85 are rejected under 35 U.S.C. § 103 as being unpatentable over UC3842 reference in view of LSH6335P reference, LSH6355P reference, Moreau and Mashino.

The UC3842 reference discloses (as described *supra*) the invention substantially as claimed. However, the UC3842 reference does not disclose at most five terminals. It would have been obvious to one of ordinary skill in the art at the time of the invention delete the five volt reference terminal and make both the setting of the time constant and the current sensing so that the time constant terminal and the current sense terminal are no longer necessary since it is known in the switching regulator art to include functions internally to reduce the number of terminals to five as taught by LSH 6335P, LSH 6355P and Moreau. Further, Mashino discloses the beneficial feature (i.e., a design choice) of reducing the number of terminals to simplify the production steps and reduce production costs.

Claims 83 and 85 additionally recite that the control signal is generated when the current sense signal equals or exceeds the error signal, respectively. The UC3842 reference discloses this feature on page 71.

Claim 84 additionally recites means responsive to control signals applied to the compensation terminal - pg. 73.

Allowable Subject Matter

5. Claims 1-81 are allowable over the prior art of record.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

7. Attached additionally to this action is a telephonic interview that was inadvertently left out of a previous Office Action.

8. All items in the 11 page IDS that were crossed through were not in compliance, as explicitly stated therein, and will only be considered (for those items not found), or found in compliance (for items that were initialed but crossed out) if applicant resubmits a proper IDS (including complete copies of the references desired to be reviewed) of those items crossed out.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner

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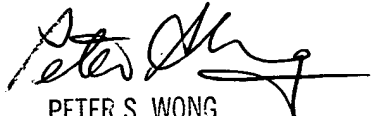
Riley whose telephone number is (703) 305-3487 or 308-1776. The examiner may normally be reached Monday through Friday, 8:30 - 5:30, est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Wong, can be reached at (703) 305-3477.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1782.

Any necessary fax can be sent to (703) 305-3431 or 32.


sr
Friday, 12 May 1995


PETER S. WONG
SUPERVISORY PATENT EXAMINER
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